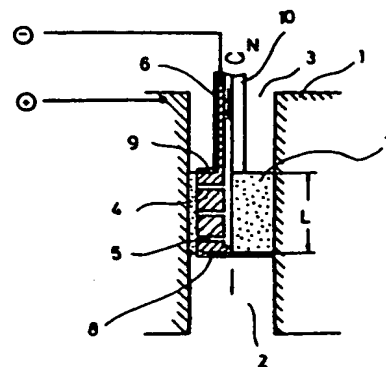


**(54) FINISHING METHOD OF HOLE INNER SURFACE**

(11) 59-227324 (A) (43) 20.12.1984 (19) JP  
 (21) Appl. No. 58-101522 (22) 6.6.1983  
 (71) HITACHI ZOSEN K.K. (72) HIDEHIKO MAEHATA(4)  
 (51) Int. Cl. B23P1/10

**PURPOSE:** To finish a deep hole inner surface in an efficient manner, by reciprocating an electrolytic tool consisting of a cylindrical electrode being smaller in diameter than that of a work hole and an abrasive while rotating it at constant speed feed, in case of a finishing method of the deep hole inner surface by means of both electrolytic and grain abrasion actions in combination.

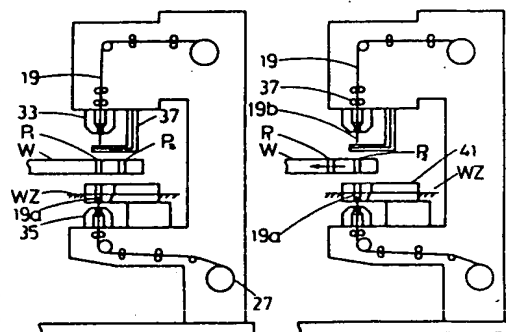
**CONSTITUTION:** A deep hole 2 being formed in a metallic work 1 connected to an anode of a DC power source which is usually machined with a drill though, is of 6S~12S in its blank surface. On the peripheral surface of a cylindrical electrode 4 being formed into an electrode tool 3 connected to a cathode of the DC power source and rather smaller in diameter than that of the hole 2, there are provided plural pieces of a nozzle hole 5 for an electrolyte 6. Either of the tool 3 is fed into the hole 2 while being rotated or its is rotated after being fed into the hole 2, then the electrolyte 6 is made to reach an inner surface of the hole 2 from these nozzle holes 5 through an abrasive 7, and DC voltage is impressed on space between the work 1 and the electrode 4, causing the tool 3 to go one direction or to do reciprocating motion at constant speed feed, thus the inner surface of the hole 2 is finished.

**(54) WIRE ELECTRODE CONNECTION METHOD IN WIRE-CUT ELECTRIC DISCHARGE MACHINE**

(11) 59-227325 (A) (43) 20.12.1984 (19) JP  
 (21) Appl. No. 58-101816 (22) 9.6.1983  
 (71) AMADA K.K. (72) YASUMI OOKUBO  
 (51) Int. Cl. B23P1/12

**PURPOSE:** To dispense with a hard stage of work inserting a wire electrode into a die and thereby improve a connection rate in the wire electrode, by cutting off the wire electrode in space between upper and lower nozzles, while joining these cut ends themselves together in the said space between these upper and lower nozzles by means of welding.

**CONSTITUTION:** When machining of a workpiece W in form consisting of one closed curve is finished at a position P1, discharge and the travel of an electrode 19 are stopped and simultaneously feed of a machining fluid to each of nozzles 33 and 35 is stopped as well. Then, the wire electrode 19 is cut off by a wire cutter 37. Afterward, a takeup reel 27 is driven to some extent whereby some quantity of the electrode 19 are rolled round so as to cause a cut end 19a at the lower side to reach up to a welding position WZ. Next, a subsequent machining lower hole P2 of the workpiece W is brought to just under a cut end 19b at the upper side of the cut electrode 19. Hereat, an interval between both these cut ends 19a and 19b are joined together by means of butt welding with a butt welder 41. And, the reel 27 is set in motion, while electric-discharge machining is resumed.

**(54) ELECTRODE WIRE FOR WIRE-CUT ELECTRIC DISCHARGE MACHINING AND MANUFACTURING DEVICE THEREOF**

(11) 59-227326 (A) (43) 20.12.1984 (19) JP  
 (21) Appl. No. 58-102195 (22) 7.6.1983  
 (71) INOUE JAPAX KENKYUSHO K.K. (72) KIYOSHI INOUE  
 (51) Int. Cl. B23P1/12

**PURPOSE:** To improve in the capacity of an electrode wire ever so better and thereby make highly accurate, stabilized electric discharge machining performable, by forming a specified thick insulating film on a surface of the electrode wire with an electrode manufacturing device.

**CONSTITUTION:** An insulating film of 100~1,000 Å in thickness is formed on a surface of an electrode wire for wire-cut electric discharge machining. In order to form the insulating film into the electrode wire, the following method is used that heating treatment first takes place in pressure oxygen gas, pressure air and glow discharge, then temperature and time are controlled and an oxidation film is formed on a base material surface on which an oxidized film is formed. For this electrode wire manufacturing device, there are provided a device which controls the shifting and travel of an electrode 1 opposing a workpiece 5 for electric discharge machining while shifting and traveling the workpiece 5 between guides 4 in a state of imposing some tension on it, a tank 6 which stores oxidized film forming treatment water 7 where the electrode wire 1 passes through by control of the above-mentioned device, a conductive electrode 8 opposed to the electrode wire 1 run past the inside of water in the treatment tank and a treatment power source which makes a circuit between the conductive electrode 8 and the electrode wire 1.

